

ASHRAE RESEARCH PROJECT ANALYSIS

(Completed by Staff January 2002)

Project Number & Title: 1226-TRP, Development Of Procedures To Utilize Automated Surface Observing System (ASOS) Weather Data In Building Energy Calculations

Responsible TC/TG: TC 4.2, Weather Information

Justification of Need: Weather data are indispensable for building energy calculations. As the weather observations in the U.S. are rapidly being replaced by automated weather stations, there is an urgent need to understand the new data, and evaluate their usability for building energy simulations. In particular, investigations are needed to determine the feasibility of estimating solar radiation from the limited sky condition data reported by the automated weather stations. Until such time a method is developed to reconstruct solar radiation data with reasonable accuracy, credible building energy simulations cannot be done using weather data reported by ASOS stations.

Actual year weather data is needed for building simulations to diagnose measured building energy performance, or to normalize predicted savings in energy management or shared savings contracts. Speaking in general terms, the absence of usable current weather data is clearly not a tenable long-term situation, and will ultimately do great damage to the entire field of building energy simulations. The development of procedures to estimate solar radiation from the available information in ASOS data would make such weather data usable for building energy calculations, and alleviate this dire situation.

Work Statement Authors: Joe Huang and Fred Buhl

Category: Design Tools

Classification: Basic Applied Research

RTAR Submitted:
(year) 2000-01

Position on TC/TC Research Plan:
#1

Position on ASHRAE Research Plan: Priority (00-01)

Coordinated with TC:

Relates to Previous Project:

Vote of TC/TG:

Vote of RAC:

Vote of RAS:

Vote of Tech Council:

Allocation of ASHRAE Funds Per Fiscal Year

<u>2001-2002</u>	<u>2002-2003</u>	<u>2003-2004</u>
\$33,750	\$33,750	\$22,081

Other Information (such as comments from TC/TG or RAC, Justification of low bidders not being recommended, practical application of results, reason for negative votes, etc.)

<u>ESTIMATED</u>	<u>16M</u>	<u>\$90,000</u>	<u>SCORE</u>
Cornell University	12	89,581	

Technology Council has reviewed this Work Statement

PM3006450796